



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/669,648

09/25/2003

Prasad Golla

Q77710

7770

23373 7590 05/31/2007
SUGHRUE MION, PLLC
2100 PENNSYLVANIA AVENUE, N.W.
SUITE 800
WASHINGTON, DC 20037

EXAMINER

WONG, XAVIER S

ART UNIT

PAPER NUMBER

2616

MAIL DATE

DELIVERY MODE

05/31/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/669,648

Applicant(s)

GOLLA ET AL.

Examiner

Xavier Wong

Art Unit

2609

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 September 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 September 2003 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 23 January 2004.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d).

Information Disclosure Statement

The information disclosure statement (IDS) submitted on 23rd January 2004 has been considered by the examiner and made of record in the application file.

Preliminary Amendment

Acknowledgement is made of applicant's preliminary amendment received on 23rd January 2004.

Drawings

The drawings are objected to because figures 2 and 3 are blurred (dark shades). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency.

Art Unit: 2609

Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein

were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1, 4, 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable by **Blanquer Gonzalez et al (U.S Pub 2003/0223428 A1)**, hereinafter **Blanquer**, in view of **Nemirovsky et al (U.S Pub 2002/0062435 A1)**.

Consider claims 1, 8 and 9, **Blanquer** disclose a system for packet scheduling in a source node shown in figure 1 that comprises a plurality of flows_{1-M} (queues) to a plurality of server output ports 120-_{1-N} (hereby also considered as a plurality of destinations nodes) in which **Blanquer** mention each server is independent from the scheduler 110 (paragraph 0030).

Nonetheless, **Blanquer** did not specifically mention that servers are associated with a respective one of the resources among a plurality of resources.

In a related field of endeavor, **Nemirovsky et al** show and disclose that a single (output) queue in a processor/server is dedicated to one (or a set) of resources (paragraphs 0036 & 0040; fig. 1).

Therefore, it would have been obvious for a person of ordinary skills in the art at the time when the invention was made to incorporate the teachings of a (server) output being associated with one of a respective resource as taught by **Nemirovsky et al**, in

Art Unit: 2616

the device of **Blanquer**, in order to allocate eligible instructions to their dedicated functional resources.

Consider claim **4**, **Blanquer** further disclose scheduling means comprising weighted fair queuing or WFR (paragraph 0007; *abstract*).

Claims **2** and **6** are rejected under 35 U.S.C. 103(a) as being unpatentable by **Blanquer Gonzalez et al** (U.S Pub 2003/0223428 A1), hereinafter **Blanquer**, in view of **Nemirovsky et al** (U.S Pub 2002/0062435 A1), as applied to claims **1** and **5**, and in further view of **Biroux et al** ("*Quality of Service in ATM Networks: State-of-the-Art Traffic Management*").

Consider claim **2**, and as applied to claim **1**, **Blanquer**, as modified by **Nemirovsky et al**, disclose the claimed invention except explicitly mentioning a plurality of stages corresponding respectively to a plurality of scheduling schemes using different criteria.

In a related field of endeavor, **Biroux et al** disclose three levels of hierarchical arbitration that can be used in priority-based, fair-share, and traffic shaping scheduling schemes (pg. 97 lines 1-18; fig. 5.8).

Therefore, it would have been obvious for a person of ordinary skills in the art at the time when the invention was made to incorporate the teachings of a plurality of stages corresponding respectively to a plurality of scheduling schemes as taught by

Art Unit: 2616

Biroux et al, in the device of **Blanquer**, as modified by **Nemirovsky et al**, in order to achieve specific bandwidth partitioning and control.

Consider claim **6**, and as applied to claims **1**, **Blanquer**, as modified by **Nemirovsky et al**, disclose the claimed invention except specifically showing the first and second sets of weights, in which each weight represent a relative weight of the traffic of each node; and as a percentage of resource allocated to each node – relative of the total traffic of the plurality of nodes.

In a related field of endeavor, **Biroux et al** disclose the concept of the weighted round-robin method that calculates relative allocation (ratio) using each connection's weight (w_i), the link capacity of the system, as well as the total (all) weights $\sum W_i$ where i can be from 1 to the total (N) number of cell slots (as resources/traffic of nodes) available (pg. 100 lines 22-33, pg. 105 lines 1-14). The ratio can be changed into a percentage by multiplying it by 100%.

Therefore, it would have been obvious to a person of ordinary skills in the art at the time the invention was made to incorporate the teachings of each weight represent a relative weight of the traffic of each node; and as a percentage of resource allocated to each node – relative of the total traffic of the plurality of nodes as taught by **Biroux et al**, in the device of **Blanquer**, as modified by **Nemirovsky et al**, in order to assign resources to each connection fairly.

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Blanquer Gonzalez et al (U.S Pub 2003/0223428 A1)**, hereinafter **Blanquer**, in view of **Nemirovsky et al (U.S Pub 2002/0062435 A1)**, as applied to claim 1, and in further view of **Fan et al (U.S Pat 6,389,019)**.

Consider claim 3, and as applied to claim 1, **Blanquer**, as modified by **Nemirovsky et al**, disclose the claimed invention except a cyclical round-robin scheduling means.

In the same field of endeavor, **Fan et al** teach queues are visited in a cyclic order in a round-robin scheduling scheme (col. 1 lines 37-39).

Therefore, it would have been obvious for a person of ordinary skills in the art at the time when the invention was made to incorporate the teachings of a cyclical round-robin scheduling means as taught by **Fan et al**, in the device of **Blanquer**, as modified by **Nemirovsky et al**, in order to avoid processes from being denied of necessary resources.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Blanquer Gonzalez et al (U.S Pub 2003/0223428 A1)**, hereinafter **Blanquer**, in view of **Nemirovsky et al (U.S Pub 2002/0062435 A1)**, as applied to claim 1, and in further view of **Fan et al (U.S Pat 6,408,005)**.

Consider claim 5, and as applied to claim 1, **Blanquer**, as modified by **Nemirovsky et al**, disclose the claimed invention except specifically mention the scheduling means are dependent on a set of static and/or dynamic weights.

In the same field of endeavor, **Fan et al** teach static and/or dynamic scheduling methods dependent on weights (col. 8 lines 63-67, col. 9 lines 1-9).

Therefore, it would have been obvious for a person of ordinary skills in the art at the time when the invention was made to incorporate the teachings of the scheduling means are dependent on a set of static and/or dynamic weights as taught by **Fan et al**, in the device of **Blanquer**, as modified by **Nemirovsky et al**, in order to allow flexible distribution of bandwidth.

Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable by **Blanquer Gonzalez et al** (U.S. Pub 2003/0223428 A1), hereinafter **Blanquer**, in view of **Nemirovsky et al** (U.S. Pub 2002/0062435 A1) and **Fan et al** (U.S. Pat 6,408,005), and as applied to claim 5, and in further view of **Biroux et al** ("*Quality of Service in ATM Networks: State-of-the-Art Traffic Management*").

Consider claim 7, and as applied to claim 5, is rejected in the same grounds as claim 6.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

A.) **Johnson et al** (U.S. Pat 7,099,355 B1) mention a hierarchical scheduling and arbitration method.

Art Unit: 2609

B.) **Chow et al (CA 2,267,021 A1)** mention an n-level scheduler serving a plurality of queues.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xavier Wong whose telephone number is 571-270-1780. The examiner can normally be reached on Monday through Friday 8 am - 5 pm (EST).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rafael Perez-Gutierrez can be reached on 571-272-7915. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Xavier Szewai Wong
X.S.W / x.s.w
23rd May 2007

A handwritten signature in black ink, appearing to read 'Xavier Szewai Wong', with a large, stylized flourish at the end.